

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 11087808
PUBLICATION DATE : 30-03-99

APPLICATION DATE : 15-10-97
APPLICATION NUMBER : 09281998

APPLICANT : NIKON CORP;

INVENTOR : ICHIJO MITSUYOSHI;

INT.CL. : H01S 3/034 G02B 1/11 H01S 3/225

TITLE : MANUFACTURE OF OPTICAL ELEMENT FOR ARF EXCIMER LASER

ABSTRACT : PROBLEM TO BE SOLVED: To set a quantity of light loss due to absorption and scattering to 2% or less, by polishing the surface of an optical element to a specific roughness, by performing ultraviolet ray washing, and by forming an optical thin film for transmitting an ArF excimer laser beam to the optical element being subjected ultraviolet ray washing.

SOLUTION: A crucible for upbringing, where fluorine calcium being synthesized and purified is used as a raw material and is filled with a fluorination agent, is placed in a vacuum electric oven, temperature in the vacuum electric oven is gradually increased, the raw material is allowed to react with the fluorination agent. Furthermore, the temperature is slowly increased up to 1,370-1,450°C, and the raw material is dissolved and is gradually crystallized from the lower part of a crucible for upbringing for obtaining fluorite. The fluorite is used as an optical material and the surface is polished by an abrasive using diamond powder so that the surface roughness becomes 5^{nm} or less, and the polished surface of the optical material is subjected to ultraviolet ray washing. An optical thin film for transmitting ArF excimer laser beam is formed at the optical element being subjected to ultraviolet ray washing.

COPYRIGHT: (C)1999,JPO